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ABSTRACT

This paper examines the challenges and problems involved in studying the Illinois school finance system, based on the experience of the Center for the Study of Educational Finance in studying the 1973 Illinois school finance reform. The first major section of the paper outlines the major variables in the 1973 Illinois reform and discusses problems that have emerged with each variable. These variables include the unweighted pupil count, the number of pupils eligible for Title I benefits, the property valuation per pupil, and the local tax rate for operating purposes. The second section discusses the three annual evaluations of the 1973 Illinois reform that have been conducted by the Center for the Study of Evaluation, with particular attention to the limitations of those evaluations. The final section briefly describes some of the difficulties facing researchers who would like to study Illinois school finance. (Author/JG)

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# ILLINOIS SCHOOL FINANCE RESEARCH: SOME KNOWNS AND UNKNOWNS

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## I. Introduction

We were in the act of responding to Alan Thomas' kind invitation to participate in this convocation when the Kappan article on the research of Sir Cyril Burt was brought to our attention. (1) Our friends and colleagues in the audience can relax; we are not going to announce to you today that we simply "made up" all that data on Illinois school finance which the Center for the Study of Educational Finance at ISU has been publishing these last few years. If we did, Superintendent Cronin and two of his predecessors would surely wonder what in the world we did with all those cans of magnetic tape and boxes of IBM cards we lugged up to Normal from Springfield for several years. Perhaps the good Sir Cyril did not "make up" his data either, and we hope his reputation can be cleared of so serious a charge. The very need to exonerate him does suggest, however, that the system of close scrutiny of scholarly efforts by one's colleagues can break down. Those of us who labor in the vineyards, or more appropriately, the cornfields, to the south of this metropolis certainly do not have the stature of Sir Cyril Burt, not even in school finance circles. It is possible, nevertheless, that our works on the effects of school finance reform in Illinois have not received the critical examination that they should have received from our peers. We propose therefore to partially correct this by an act of what our Russian friends would call "samocritika," that is, "self criticism." After all, if self criticism has been held to be desirable by so diverse a group as puritans, communists, and catholics, then surely there must be something to it.

We are sensitive to the fact, however, that anyone who has paid the fee to participate in this clambake is entitled to more than simply a public confessional. Accordingly throughout this paper are scattered some, though by no means all, of the findings of over three years of empirical work on school finance reform in Illinois at the Center at ISU. The footnotes carry the citations for the more serious student who may wish to delve further into these matters. To facilitate that search, the current publication list of the Center for the Study of Educational Finance is also available at the rear of the room. This paper is divided into two major sections. In the first part we shall outline the major variables in the 1973 Illinois reform and discuss problems that have emerged with each variable. In the second part we shall discuss evaluations of the 1973 reform that have been conducted for the past three years concentrating on the limitations of those evaluations. Finally we shall conclude these remarks by a short list of difficulties facing any researcher foolhardy enough to think that he or she can make sense out of Illinois school finance.

## II. Bare Bones of the 1973 Illinois Reform: Osteopathic Problems

It would be tempting to just describe the 1973 Illinois reform as another "district power equalization" scheme, or perhaps a "guaranteed valuation" or "guaranteed tax yield" approach, or even an "equal expenditure for equal effort" allocation system, and then push on to the much more interesting problems of evaluating this allocation system. But we suffer from a chronic Tower of Babel in school finance and since these labels have only limited common tender among researchers, we shall have to do a bit more than simply provide a label. In this

connection it might be pointed out that the specific label under which the 1973 reform is usually discussed within the borders of this state, that is, the "resource equalizer" formula, has little meaning in any other state with the possible exception of neighboring Wisconsin. There are several good descriptions available from the Illinois Office of Education and the Center of both the basic 1973 legislation and the changes in that legislation since 1973.(2) We shall therefore be content here with a description of four major variables in the formula and a single constant since these five elements are crucial to both what we know and what we do not know about this allocation system.

The first variable is the simple unweighted pupil count. As might be expected, this variable has changed very little since 1973. While a few states use a per capita rather than a per pupil measure of school district wealth,(3) all the states that we know of base their general purpose allocation system on a pupil count. Sometimes this is indirect, as in some southern and southwestern states where "classroom" and "teacher" units are used, but ultimately even these "constructed" allocation units also depend upon the number of students in the district. The only exceptions we are aware of are some categorical grants in a few states which depend upon the number of professionals of a certain type in the district rather than the number of pupils. This "warm body" orientation, as it is referred to by some critics, also runs through the funding of public post-secondary institutions, although at that level the unit is usually "credit hours generated." Districts losing pupils will therefore also lose state aid, ceteris paribus. Recent studies by the Illinois Office of Education and by the Center outline some circumstances surrounding the loss of students.(4) We know, for example, that these

student losses are not uniform throughout this state and that certain types of districts and certain geographic regions of the state are afflicted with greater loss than others. Since 1973, Illinois has moved with other states to cushion the burden of declining enrollments by allowing the districts to use the average enrollment of a three-year period. It seems to us that not much can really be done about this variable. It would be difficult, at any rate, to convince the Illinois legislature that the number of pupils was not a fundamental dimension of "need" for funds. The public post-secondary units in this state have never been able to break the "warm body" frame of reference, even though they are officially charged with functions like research and public service, and these latter functions are only tangentially related to the body count for instruction. If the post-secondary units cannot break out of the "numbers racket," it is doubtful that the K-12 units can.

The second variable of importance is the number of pupils eligible for Title I benefits under the federal Elementary and Secondary Education Act. This variable enters the Illinois general purpose grant-in-aid through the weighted pupil count, which, unlike unweighted pupils, has changed fundamentally since 1973. Illinois, unlike states like Michigan and California, chose not to enact a separate categorical program for the disadvantaged, but rather to place a variable in the general allocation formula which would allocate more dollars to those districts with higher concentrations of poverty children. Through a complexity in the Illinois law, a few districts do receive funds on the basis of a constant weighting of .45 for Title I eligibles. However, most districts receive funds based upon a variable weighting of from .00 to a maximum of .75, depending on

the concentration of poverty children in the district relative to the concentration of poverty children in the state. Illinois also provides weights of .25 for high school students and also a weighting for kindergarten students. Three other states in the Union also use this method of distributing state funds to concentrations of poverty children: Pennsylvania, Ohio, and Minnesota. Each of these states differs in the details of the distribution mechanism. This is a most important variable in the Illinois scene which is sometimes passed over lightly by those unfamiliar with this state's distribution system. In the first place, about 18% of all the general purpose funds in the state are distributed by this factor alone in the formula. Secondly, it is the most important aspect of Illinois aid to central city school districts and it also delivers state funds into pockets of rural poverty, mostly in the extreme southern part of this state.

This important variable is not without problems. In the first place, linking what amounts to a state definition of poverty children to the federal definition of poverty children has produced some unintended changes in the distribution of state funds as the federal definition of Title I eligibility has changed with the passage of time. This we know. It is therefore not surprising to have a recommendation coming from the new Citizens Commission on School Finance in Illinois (5) that the state find a separate definition of disadvantagement. Unfortunately, we do not know what this new definition might be. The state might want to move in the direction of putting funds into areas of high "educational" deprivation, as the state of New York at least tries to do. Unfortunately, Illinois has no state-wide testing program; therefore, there is no firm data on the geographic distribution of educational deprivation. There is a state-wide evaluation program, but the

results cannot be identified either by school district or by individual school. Alternately, the state might want to put funds into districts with high concentrations of low income families. Unfortunately, Illinois has no annual income data by school district. Three or four "blue ribbon" study commissions have called for obtaining annual income data from the state income tax return and bills have been introduced into the General Assembly to achieve this, all to no avail. Yet another possibility would be to place funds in districts with high concentrations of children on welfare rolls. To some extent this is done now with the federal definition of Title I eligibles. However, the Office of Education has been less than satisfied with the completeness of the welfare counts it gets from other agencies of state government which do not collect data on a school district basis. The sad truth is that once we leave the sheltered harbour of a federal definition of poverty, we are at sea without a conceptual rudder, and we have only a limited amount of knowledge about the distribution of educational deprivation in this state.

There is still another problem with the Title I variable in Illinois. The Chicago school district is presently involved in a court case brought by the Reverend Jesse Jackson over the interpretation of this particular portion of the 1973 reform. Essentially, this argument turns on whether there is any legal requirement that the Chicago school district ensure that the funds sent to it by the state due to the poverty concentration factor must then be passed through to individual schools with high concentrations of poverty children. This "targeting" provision was not enacted into the law in 1973, but there is a provision in the law requiring that the school district account for the use of the funds it received under this particular variable. We do not necessarily wish to take sides in this current

controversy, but those who maintain that these are general funds, rather than targeted funds, do have the advantage of the argument that if the General Assembly had intended that the funds be targeted to individual schools, they could have either: (a) written that provision into the law, or (b) they could have followed the pattern of other states such as Michigan and California and passed a state categorical grant for the disadvantaged. This latter course of action would not only have targeted funds to individual schools, it would have targeted funds to individual programs in individual schools. In any event, we do not at present have much of an idea where these funds went, or for what they were used, at least at the state levels. Individual school districts, of course, can account for their usage. A part of this problem at the state level is an inadequately developed chart of accounts. Despite good leadership from the Illinois Office of Education on this point, the state still does not have a required accounting system which would show costs by individual school and by individual program. A program accounting system has been developed and adopted in a number of districts, but we are still a few years away from adoption in all the one thousand plus districts of this state.

The third variable is property valuation per pupil. This has been the accepted measurement of school district wealth in Illinois since 1927. There are eight states in the Union which use other variables to constitute the wealth dimension, usually including income in some form. The closest of these geographically to Illinois using a combination of property valuation and income is Kansas. Factor analysis of school district data in other states has usually shown that the property valuation variable is not closely associated with either income or income-related variables. (6) As previously indicated, individuals and groups have put

forward proposals to include an income specification in the Illinois grant-in-aid system for at least a decade. Bills have been introduced to do this in the General Assembly, but none has passed a single house.(7) The lack of annual income data has usually been put forward as the principal reason for turning back these attempts to include an income factor in the general purpose aid formula. However, anyone who really believes this last statement probably also believes in Santa Claus and the Tooth Fairy. A much more important consideration is that income wealthy schools in this state, many of whose representatives are in this room, believe they would be hurt by the inclusion of an income factor in the general purpose formula and they have sufficient political clout to prevent this from occurring.

There has been a change since 1973 in the wealth variable in this state nevertheless. While the specification of wealth is still property valuations, the weighting of students by the concentration of Title I children produces a property valuation per weighted child rank order that is different from a rank order based on property valuations per unweighted child. In the main, the large central city school districts of Illinois have profited from this change due to their concentrations of Title I children and, therefore, they receive more state aid. It is important to note that in Illinois the Title I weighting appears in the general allocation formula twice--once in the way pupils are counted and once in the way wealth is measured.

There are unfortunately many things we do not know about the measurement of school district wealth in Illinois. Much of what we do know centers around the work of J. Dan Hou. A few years ago a dissertation at ISU by Hou did produce

some interesting bits of evidence concerning the relationship of property valuation to income in this state.(8) Specifically, it appears that this relationship is curvilinear through the whole range of the property valuation scale. Up to the median property valuation, the relationship is linear, e.g., property poor districts are income poor districts and moderately rich property districts are also moderately rich income districts. However, above the median there is no meaningful relationship, e.g., very rich property districts may, or may not, be very rich income districts and moderately rich income districts (at least above the median) may, or may not, be moderately rich property valuation districts. In addition to the factor analysis studies previously cited, quite a number of studies have demonstrated low linear correlations between income or income-related variables and property valuation.(9) However, if Hou is correct about the existence of curvilinearity, then product-moment correlations, whole or partial, and also factor analysis would be misleading if conducted on the whole range of property-income measurements. Parenthetically, it might be said that even relatively sophisticated recent research in school finance is still painfully tied to the apron strings of linear models. The existence of curvilinear relations was demonstrated empirically in school variables quite some time ago.(10) Probably the ease and speed of "canned" computer programs, most of which are based on linear assumptions, has been too great for many researchers to resist.

Hou has continued his interest in the measurement of school district wealth and a study of his released by the Illinois Office of Education provides some further light on this subject. While our paper attempts to concentrate on Illinois school finance, it is helpful, at least on this particular point, to compare some

of Hou's results in Illinois with the results obtained by Allan Odden in the states of Colorado, Connecticut, South Dakota, and Washington.(11) Comparison of studies with different research designs is never an easy task and this is true for the Hou vs. Odden comparison. In the first place, Hou uses four different income weightings to adjust his property valuation data, while Odden uses only one. Secondly, Odden introduces his new wealth measurements into a hypothetical grant-in-aid system for simulation purposes, while Hou simulates with the actual grant-in-aid system in Illinois. Finally, Odden concentrates more on the differences between per pupil and per capita measurements, while Hou is more concerned with his different types of income specifications. Nevertheless, there are some similar general results. For example, both Odden and Hou find that rural districts are helped by the introduction of an income factor and that suburban districts are generally hurt. Similar results were obtained by Betsy Levin some years ago.(12) Odden finds that suburban districts receive more state aid under per student measurements, while central cities are assisted more under per capita measurements. Hou finds that while suburban districts are indeed hurt, the degree of the damage to state aid depends upon the kind of income specification selected. For example, if Illinois suburban districts were forced to accept an income specification in the formula, they would probably prefer the Kansas method of simply adding property valuation and income together and dividing by two. Central city school districts in Illinois on the other hand, plus the rural districts, and, in fact, all unit districts in this state would prefer not income per capita, as one might suspect from the Odden research, but rather income per Title I weighted child. Conversely, the dual districts in this state (separate elementary and high

school districts) would prefer any of the other income specifications Hou has used except income per Title I weighted child.

Unfortunately, neither Odden nor Hou can show major gains to central city school districts by the introduction of an income variable into the general grant-in-aid formula. This is a very important policy point since the votes of the central cities would be needed in most legislatures to secure passage of any such legislation. Hou can demonstrate some very modest gains in state aid to central cities using an income factor weighted by the Illinois poverty concentration pupil count previously discussed. However, rural districts can gain over 16% state aid by using that poverty concentration weighted income factor, while the central city gain is about 2%. Hou's research, unlike Odden's, also investigates the effect of introducing income specifications on state-wide equity goals, which are discussed in the second portion of this paper. In general, Hou finds that either per capita income or income per Title I weighted pupil would move the state of Illinois closer to these equity goals.

Until very recently, it has not been possible in this state to get property valuation data disaggregated into classifications such as residential, commercial, industrial, farm, etc. Such classified property valuation data are now available on a township basis for a small number of counties in Illinois and the Center at ISU is seeking funds to explore these new data. However, even these new data will only be an approximation since data translations from township to school district terms will require an assumption that these different valuations are evenly spread in a township, and we know that not to be true. The bottom line is that we will never have a very firm grip on the important wealth variable in

Illinois until the General Assembly requires both income data and disaggregated property valuation data by individual school district on an annual basis. Frankly speaking, this is an area in which the political process might finally begin to stand in the way of accurate school finance research. If some legislators refuse to allow the collection of certain data simply because they think there is the possibility that these data might, at some future point in time, be used to the detriment of their constituents, we could reach a real standoff between the need for data upon which to base public policy decisions and the perceived interests of at least a part of the public for which those decisions are made.

The fourth variable is the local tax rate for operating purposes. This is completely new. Prior to 1973 Illinois was on a Strayer-Haig system and therefore did not use a measurement of this nature. Without a doubt, we know far less about this variable than about any of the other variables discussed to this point. Theoretically, this tax rate is supposed to represent "local effort." It is an important part of the "equal expenditure for equal effort" motivation that led to the passage of the 1973 reform in the first place. The first problem is that "effort" cannot really be measured without also specifying "ability to pay" or "wealth" and hence all the problems discussed previously with the wealth variable also adhere to the "effort" variable. For example, if income is desirable in a wealth measurement, it is just as desirable in an effort measurement. But there are additional problems beyond this. Illinois, like most other states, with the possible exception of Maryland, is beset with fractional assessment practices. Legislation is currently in existence to bring all ratios of assessed valuation to

true market valuation toward 33 1/3 percent, excluding classified valuations in Cook County. However, even if the current legislation is successful, it will only have equalized valuations between counties in the state and not between townships. Therefore, there is no way to be absolutely sure that a given tax rate, say $3.00 on the hundred valuation, or 3%, in one district has exactly that same tax burden in another district. The two districts may well have different fractional assessments because they lie in different townships. Furthermore, both reason and some empirical research (13) suggest that at least some districts may be able to "export" a part of their property tax burden. A district with heavy commercial and industrial valuations may be able to shift forward a part of the property tax burden to the customers and consumers of its products. A district that is primarily residential has no such possibilities. For several reasons then it must be clear that we do not really know how to measure "equal effort" in Illinois and, therefore, cannot really attain "equal expenditure for equal effort." This particular shortcoming may have legal consequences. A part of the argument of the city of Cincinnati in their suit against the Ohio Department of Education (Cincinnati vs. Essex) alleges that the failure of the state to measure effort on an equitable basis is in fact a denial of equal protection of the law. We have elsewhere noted that, if the Ohio courts hold that this is indeed a violation of the equal protection clause, then similar cases could be expected in Illinois, Kansas, Colorado, and indeed many other "reward for effort" or "district power equalization" states. (14)

What we do know empirically about this tax rate variable is disquieting. Some nine years ago, Johns and Kimbrough pointed out that in Illinois and a few other states, there was a positive relationship between income and tax effort,

e.g., the richer districts exerted the greater effort and the poorer districts exerted the lower effort.(15) This led Johns to reverse an earlier more favorable opinion of "reward for effort" provisions and to oppose the adoption of "reward for effort" principles in state allocation systems.(16) In our first year evaluation of the 1973 reform, commented on later in this paper, we also observed the same positive relationship between income and tax rate.(17) These correlations were of relatively low magnitude for unit districts, but of much higher magnitude for high school and elementary districts. More recently Yang and Chaudhari, in a study supported by the Illinois Office of Education, found high tax rates in Illinois to be correlated with high educational attainment, high occupational status, high residential housing values, and population density. By contrast, low medium tax rates were associated with low educational attainment and low income.(18) An important qualification on this piece of research, however, is that the tax rates in question are 1974 tax rates updated by some 1975 referenda results. A study of the determinants of tax referenda at ISU by Rasanond also indicates that property wealthy school districts continue to pass more referenda than do property poor school districts, after the 1973 reform as well as before the 1973 reform.(19) Simultaneously with these Illinois investigations, Gensemer has demonstrated in Ohio that even in a multivariate model there is still a strong positive relationship between income and tax rate. Specifically, he finds that each additional $100 in 1969 income was related to an additional 0.14 mills on a school district's 1975-76 school operating millage rate.(20) Alexander also notes a positive relationship between income and tax rates in California.(21) The evidence is building that Johns may be correct in his position

that "reward for effort" is not compatible with equity or equalization of educational opportunity goals. However, we wish to suspend judgment until we have had an opportunity to study more referenda results in Illinois and more importantly until we can determine more precisely the conditions surrounding tax rate change. There is bound to be a time lag in the effect of any formula and, in the case of the 1973 reform in Illinois, the first tax rates that could have been affected were the 1975 rates. More likely it was the 1976 and 1977 rates that were influenced by the 1973 reform. Actually, we have little or no idea how long it takes for a newly adopted "district power equalization" or "reward for effort" system to influence local voter behavior. Therefore, we are not completely sure that in DPE situations it is always the rich and well educated who are going to make the greater marginal effort than the poor and less educated. If the ratio of successful referenda in the poorer districts has improved more than the ratio of successful referenda in the wealthier districts, we would have a finding meaningful to all "district power equalization" states. The Center is currently seeking funds to explore the determinants of tax rate change from 1970 to 1973 versus 1973 to 1976. We feel that only longitudinal studies of tax rate change can cast much light on the crucial effort variable.

In the event that the General Assembly does want to move to another specification of effort, research by Carson and Hou in Illinois (22) suggests that the effort variable could be weighted by an income specification with some interesting results. Carson and Hou, fully cognizant of the harmful effects of an income weighting on state aid to suburban districts, offer models in which only districts below the state average income are helped and districts over the state average

are not hurt. Furthermore, any district still in the "board leeway" action range, e.g., below the tax rates requiring referenda, would not be helped. Curiously, however, only median family income and per capita income are introduced into these models and not income per Title I weighted child. A number of things can be said for these models. For example, they send more state aid to downstate districts and thus offset the criticism that the 1973 reform was mostly for the benefit of the central cities and their suburbs. Second, the cost seems to be within reasonable limits, around 30 million, if introduced into the present formula. Perhaps most importantly, such a model would at least partially meet the criticism that the inclusion of an income variable is not useful unless the local district has access to income at the local tax level. If state aid is withdrawn from high income districts, it can be argued that these high income districts will then raise their property tax rates, thus driving out whatever poorer families happen to reside within the district. Even the wealthiest districts in Illinois have at least some relatively poor families. However, if the income factor introduced into the grant-in-aid only increases state aid, and does not decrease state aid, then the fact that the local district cannot tax income is less objectionable.

The problem with the Carson and Hou approach seems to be the same problem with introducing income into the wealth factor, that is, central city school districts are not helped very much by this process. Using income per Title I weighted child would probably place more funds in the central cities, but not much more. Experimentation with models like this is a never-ending process. For example, we have yet to see a model that would introduce income per Title I weighted child into both the effort factor and the wealth factor simultaneously.

Such a model would probably be more useful to the central cities. Unfortunately, such a model would also be more expensive from the point of view of state aid. Herein lies an interesting political dilemma. A highly tailored income factor introduced into either the wealth variable or the effort variable or both, which helped only the income poorest districts, might find a warmer reception with the Governor, since it would be less costly. However, such a procedure would aid such a small percentage of the population that it might be difficult to pass in the General Assembly. It is hypocracy not to admit that one does buy votes for reform with increased state aid.

One final point on the 1973 reform of the general purpose grant-in-aid relates not to a variable, but rather to a constant. That constant is the guaranteed valuation per pupil which sets the limits of state contribution to the formula. At present this is set so that the state participates up to $1,260 per Title I weighted child, assuming the district is levying the maximum tax rate under the formula. However, no provision was made in the 1973 reform to escalate this level with the passage of time. Most analysts agree that one of the principal weaknesses of the prior foundation level grant-in-aid program in Illinois was the inability of the foundation level to keep pace with inflation. The reform of 1973 unfortunately did nothing about this weakness. The $1,260 figure will therefore get out of date, if it is not already out of date, and if the inflation continues as it has in the past, this figure must be changed. The forthcoming report by the Citizens Commission on School Finance addresses this inflationary problem and recommends escalating the guarantee to keep pace with the inflation.(23) Mention, however, of keeping the Illinois grant-in-aid formula current with inflation produces something just

short of cardiac arrest in the Illinois Bureau of the Budget. It is surely true that there is seldom any "reform" that does not call for increased state aid and a reform aimed at offsetting inflation is certainly not a bargain basement affair. However, increasing the percentage of state aid is not simply a means of solving equity problems, although it is most assuredly that. It is also a way of keeping the entire system more current with inflation since state sales and income revenue, upon which state aid depends, is more elastic in yield than the local districts' property tax revenues. Clearly, a high level of state participation, plus a state grant-in-aid system that automatically adjusts for inflation, are at least two hallmarks of a good public school finance system at the present point in history. For further discussion of the matter of inflation, the 13th School Problems Commission Report could prove helpful. (24) Governor Thompson is currently asking for the voters of Illinois to delay the purchase of such a system until some future date. We concur with him that such a system would probably necessitate a raise in the state income tax rates, but then any honest presentation on Illinois school finance should probably begin with the sentence: "We need an increase in the state income tax rates because....."

## III. The Three Annual Evaluations of the 1973 Reform

When the Illinois General Assembly broke with 46 years of tradition, it obviously did so with more than a little hesitation. The legislative leadership regarded the new allocation system as "experimental" and directed that it be closely monitored and tested for the next few years. Accordingly, both the Illinois School Problems Commission and the Illinois Office of Education have provided

small grants to the Center at ISU to evaluate on an annual basis the operation of the 1973 reform. The General Assembly is to be congratulated on this action. We know of few other situations where a legislative body made specific provisions for the evaluation of school finance reform legislation. A small amount of matching funds were also secured from the U.S. Office of Education. Three such annual evaluations have been completed using financial data from each of the three years following the passage of the Act. (25) Since our intent in this paper is to improve research rather than to report research, we shall provide only the briefest summary of the results and concentrate upon the limitations of these studies.

The three annual evaluations were set up on a fairly standard format to facilitate comparison of results from year to year. Some additional analyses were included each year which may, or may not, have been repeated in other years. The emphasis in all three annual reports was upon equity goals of the state and two basic criteria were established to operationalize these equity goals. One was labeled "permissible variance" and the other "fiscal neutrality," although some analysts now seem to prefer to call this second criteria "wealth neutrality." We believe this to be in keeping with the intent of the 1973 reform. In passing this act, the General Assembly had placed emphasis on its desire to reduce the disparity in expenditure per pupil between school districts to more "permissible" ranges. Secondly, the Legislature had also evidenced a desire to make expenditures less of a function of local district wealth. Legislative and political studies will show, of course, that not all members of the General Assembly desired that goal, and some legislators do not consider these desirable goals even at this point in time. The legislative leadership, however, particularly acting through

the Illinois School Problems Commission, did make it known that the attainment of equity goals was a high priority item. It is to be hoped that legislative and political studies currently underway at the University of Chicago can cast more light upon the motivations and actions of the General Assembly during this 1972-73 reform period.(26)

The Center at ISU then borrowed, adapted, and developed various measurement techniques to measure these two goals, e.g., reduction of variance and the association of wealth with expenditures. Some of this measurement activity was the straightforward use of standard statistics such as the use of the coefficient of variation, that is, the standard deviation divided by the mean and multiplied by 100. But we soon found we needed other quantitative tools not to be found in most statistics books. For example, one notion of "permissible variance" held by many educators and legislators is that the state should be concerned only with variation below the middle of the expenditure distribution. According to this point of view, held historically by Paul Mort and his associates among others, the task of the state is to level up expenditures in the bottom half of the distribution, but not to constrain in any way expenditures in the top half of the expenditure distribution.(27) The use of the coefficient of variation would not be appropriate if that view is taken of "permissible variance." Fortunately, Eugene McLoone had been using indexes of expenditures based on the distribution of expenditures below the median and we adopted some of these tools for Illinois.(28) Our usage was not identical with McLoone's, however, and therefore our results cannot be directly compared with his.

Finding an operational definition of "permissible variance" was not too difficult. Finding an operational definition of "fiscal neutrality" was a bit more of a challenge. We started with the notion of a least squares regression slope of expenditures on wealth, since that had been used historically in studies of expenditure determination at Stanford University and elsewhere.(29) However, in order to simplify the results for legislators and other decision-makers we used this relationship in simple bi-variate form. That is, the relationships we reported in the three annual evaluations between expenditure per pupil and wealth per pupil were gross elasticities of expenditure upon property valuation and upon income. They are not net elasticities since they do not control for the effect of variables other than the two measurements of wealth upon expenditures. This is the first limitation upon our results. We are of the opinion that net elasticities might be more appropriate and Harrison has demonstrated that this is possible.(30) However, there are major theoretical and data availability problems if one wishes to use net rather than gross elasticities of wealth as a specification of "fiscal neutrality." In the first place, even after decades of experimentation with expenditure determination studies in school finance, there is still no one single multivariate expenditure determination model that would be acceptable to all researchers.(31) That is, we are still not sure just what to control for when we measure the relationship between expenditures and wealth. Second, expenditure determination studies have turned up major specification and intercorrelation problems with the independent variables. The full weight of all these econometric concerns descends upon the school finance analyst who options for net elasticities rather than gross elasticities to measure fiscal neutrality or wealth neutrality. We were just not that brave and besides we knew of others who were simultaneously

measuring wealth neutrality by gross elasticities. (32) One final point on the net elasticities limitation. Those attempting to use net elasticities in a longitudinal framework will have to find control variables that can be measured on an annual basis, or at least at more than one point in time. This will not prove an easy task.

While gross elasticities of expenditure upon wealth have proven a very serviceable tool, we were, and we are, aware of one serious weakness in that tool. In the standard regression technique each school district has the same effect on the reported regression coefficient, or in this case elasticities, since we customarily transform both expenditures and the wealth measurements into their logarithms. Thus the Chicago school district has the same weighting as the smallest district in the state in these calculations. This started us on a long and very involved search for a measurement tool that would use the student as the unit of analysis rather than the district. Only a small part of that development can be recounted here. Essentially, it led us to review the possible uses of the Lorenz curve and the Gini index, methods which had been used by economists since the turn of this century but were not a standard part of educational statistics. Eventually we devised a particular adaptation of the Lorenz-Gini procedure, which depends upon ranking districts first by a wealth measurement and then calculating a cumulative distribution of students from poor to wealthy. Essentially, this usage turns the Lorenz-Gini procedure into a measurement of association rather than a measurement of dispersion, which had been its traditional role in economics. The current school finance literature reports both successes and failures with this approach. (33) It appears to work well in most states when property valuations

are taken as the measurement of wealth, but complications can arise when income is introduced into the wealth specifications. Neither the descriptive nor the inferential properties of this quantitative technique are fully known at present and we have usually cautioned interested researchers to use the procedure with some care.

We come now to a second major limitation on the Illinois evaluations. The expenditure measured in all three annual evaluations are revenues from local sources plus general state aid. We have never included either state categorical revenues or federal categorical revenues in these calculations. Our justification for not including these important other sources of educational revenue, and to realize just how important they are one need only remember that one-third of Illinois K-12 aid is distributed through state categoricals, has been that these other forms of aid are "targeted," that is, that they are intended for special kinds of student needs. In essence then, we have assumed that state general equity goals must be achieved before "targeted" money is laid on, since "targeted" money is intended for special needs after general equity has been achieved. We have therefore taken the same policy position relative to state categoricals that the federal officials generally take relative to federal categoricals. Equity, or in the federal terms "parity," must be achieved first with general state aid and local dollars before categorical dollars are allowed to enter the calculations. It has been argued by some that we should have looked at the relationship between total expenditures per pupil and wealth rather than simply state general aid dollars plus local dollars. However, that would require us to believe that "targeted" dollars are to be used

to establish general state equity goals. The important point is that if either total state dollars or state plus federal dollars are used in the equity measurements we have devised at the Center, then one might well get quite different results. In fact, if our original assumption was correct, one should get different results when these funds are added to the analysis.

A third limitation on the Center's evaluations concerns the difficulty of comparing these results with any other state. The weighted student measurement used in Illinois is not like any other weighting used in any other state. Illinois results could be stated in average daily attendance (ADA) terms, and we have done that in some instances. However, these ADA results can be quite misleading since the state both delivers its dollars and even measures the wealth of school districts on a weighted student basis. Since the General Assembly did not "target" the funds delivered by means of the Title I weighting, all evaluations of the Center do not treat those funds as categorical aid, but rather include them within the general state aid. Thus, it is more accurate to think of the Illinois evaluations as equity tests or equity evaluations conducted on school districts whose pupils have been weighted for a condition of poverty. We think this procedure is legitimate if one is going to try to assess progress toward equity goals which Illinois has made with the passage of time, but it does make state-to-state comparisons at one point in time awkward. A study by Thomas Yang supported by the Center does provide one way out of this limitation.(34) Yang used the same evaluation procedures we have used in Illinois on both Michigan and Kansas data. However, in each case Yang used the pupil measurement peculiar to each state. Therefore,

while he cannot make comparisons at any given time between the three states, he can assess the degree to which each state has progressed toward equity goals with the passage of time.

If all of the foregoing limitations are borne firmly in mind, then one can say that the 1973 act has done what the General Assembly wanted it to do in the three years immediately following the reform. The evidence does show a reduction in the disparity between school districts in expenditure per pupil. The trend is more marked in unit districts and high school districts than in elementary districts, but there is evidence of reduction in variance in all three populations. If one concentrates on the variation below the median expenditure, then the evidence indicates progress in moving up the low spending unit districts and high school districts, but there appears to be no such progress for low spending elementary districts. The findings with respect to the attainment of the goal of "fiscal neutrality" or "wealth neutrality" are also reassuring. This is especially the case when the evaluation using gross wealth elasticities is used. In all three categories of districts in Illinois, e.g., units, elementaries, and high schools, there is evidence of movement toward wealth neutrality. This is especially true in unit districts where the slope of the regression line between property valuations per pupil and expenditures per pupil has been cut in half within a three-year period. The evidence using income as a wealth specification, rather than property valuations, is not so regular as the property valuation results, but the third year's values are all less than the base year and thus support in general the property valuation results. Should the state ever face a constitutional challenge to its

allocation system based upon wealth neutrality grounds, these results should prove helpful to the defendants. Tests made with the Gini index and the Lorenz curves are also generally supportive of the results achieved with the gross wealth elasticities, but there are problems in the use of this evaluation technique. Essentially, these problems have centered around the fact that Chicago appears relatively wealthy in terms of median family income, or even income per weighted pupil, and thus aid to Chicago is registered as aid to wealthy students on the Gini-Lorenz procedures.

Not all the results of the evaluations are cast up in equity terms. The first year's evaluation, for example, broke down state aid increments according to school district typologies, like central cities, slow growth and rapid growth suburbs, independent cities, and rural districts. It was obvious from these results that some of the critics of the 1973 reform were justified in their allegation that most of the increase in aid went to either central cities or suburban districts. To put it more bluntly, the rural areas were left out in the 1973 reform. This may tell the political analysts something about the waning strength of the rural contingent in the Illinois General Assembly. We have not developed that type of classification analysis as fully as we might in the second and third year evaluations, but we hope to come back to it in future evaluations.

We come now to the fourth and final limitation on the Center's evaluations. All of these results are for the short run, speficially three years after the enactment of the reform. We know very little about the long-run results of this kind of allocation system. It is certainly possible that the movement of the state toward equity goals if mostly a matter of the large increase in state aid since 1973 and

has little to do with the nature of the grant-in-aid system. Unless the grant-in-aid system is very badly structured, equity problems will improve with an increase in the percentage of funding assumed by the state government as opposed to the local governments, no matter what the grant-in-aid system looks like.(35) There is another problem with the particular kind of grant-in-aid system Illinois adopted in 1973. As long as the allocation formula is being "phased in," the districts are really being paid not only for their current effort but also for their past effort. Once the formula is fully funded, districts will receive increments in state aid only if they are able to increase their local tax rates, and in Illinois this usually means passing tax referenda. Thus, beyond full funding of the 1973 reform, districts which have not already achieved the maximum rate that the state will match and which pass tax referenda will be rewarded by the state; those that do not pass referenda will continue to receive less from the state, assuming no change in the constants of the formula and no change in the constraints on the variables in the formula. But, as we have previously mentioned in this paper, we know only a limited amount concerning the determinants of tax rates at one point in time and virtually nothing about the determinants of tax rate change through time. If we are to get any kind of firm grip upon where we might be heading beyond full funding of the 1973 reform, we must learn more about referenda behavior and tax rate change under the conditions of a grant-in-aid system that rewards local effort. This statement, of course, holds not just for Illinois, but for all other states that have adopted "district power equalization" or "guaranteed tax yield" systems. The efforts of the Center are currently directed toward gaining that type of information.

## IV. The Rocks and Shoals of Illinois School Finance

Navigating the waters of Illinois school finance is a hazardous undertaking at best. Among the rocks and shoals presented to any explorer are the following. First, no one can say with absolute certainty just what the overall picture is for all 1,025 districts in this state. The best we can currently do is to describe the situation for three distinct populations of 128 high school districts, 499 elementary districts,and 448 unit districts. The separate high school and elementaries overlap in a haphazard fashion and as yet we have been unable to reduce all fiscal data to constant K-12 terms. This is complicated by the fact that the organizational distribution is not uniform in the state. Most dual districts are in the north, while the unit districts are in the central and southern portions of the state. Second, the presence of over 1,000 districts means the researcher is delivered over to the not-so-tender mercies of the "computer jocks" for anything that is known at all. Contemplating the high probability of programming error in one's data will drive even strong men to drink. Third, there is a good chance that the over 1,000 units of measurement do contain quite a number of highly deviant individual scores which will have all kinds of weird results on the researcher's descriptive and inferential statistics. A good case can be made for "Windsorizing" the data in Illinois school finance, e.g., eliminating ultra-high and ultra-low scores, but as yet we have lacked the courage to do this at the Center. Fourth, Illinois school districts are coterminous with absolutely no other unit of local government, not even mosquito abatement districts. Analysts used to working with all the county data that is available to those who explore school finance in

the southern part of the United States are usually aghast at the small amounts of data available by individual school districts in Illinois. Fifth, since Illinois has no annual income data by school district, people do look at you with a rather strange expression on their faces when you explain that the federal census income data you are using is nine or ten years old. Sixth, Illinois has no required statewide tests of educational achievement and, therefore, devotees of the production functions in school district terms have avoided this state as if it had the plague. Seventh, this state has very large and complicated special purpose or categorical grants and no one can say with any degree of confidence what the effects of these categorical grants are on the general fiscal picture. Eighth, the Illinois General Assembly just doesn't act like an American legislative body when it comes to school finance. The model seems to be the British Parliament where legislation is less likely to be repealed. The basic law is simply amended and the old allocation systems are kept right along side of the new allocation systems. The result is one of the more complicated school finance laws in the nation. Getting to know how the Illinois financial system works is like being initiated into a secret fraternal order. Ninth, disaggregated data on different kinds of property valuations are available on only a limited number of school districts, but on that particular score Illinois is probably no worse off than quite a number of other states. Tenth, costs are not yet available by individual school and individual program at the state level, but the state is at least trying to do something about that situation. Eleventh, incredible as it may seem, the largest district in the state, Chicago, is not a part of the reporting system for certain kinds of data in the state. Twelfth, Illinois

spends over four billion dollars per year on school finance, but until recently, it has seldom put more than a few thousand dollars per year into school finance research. There are other jagged rocks that can tear the heart out of any vessel you launch in these fearful waters, many of these other impediments are of a political nature. However, a "dirty dozen" is a nice round number and we should let you uncover the rest of the soiled laundry for yourself.

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